CLAIMS

What is claimed:

1. A method for programmed material consolidation, comprising:

viewing a portion of a field of exposure of a selective consolidation system of a programmable material consolidation apparatus to identify a location of at least one feature within the field of exposure; and

selectively consolidating material on or proximate to the at least one substrate based on the location of the at least one feature.

2. The method of claim 1, wherein viewing is effected as a camera is scanned over the field of exposure.

3. The method of claim 1, wherein viewing includes rotatably orienting a camera positioned at a fixed location toward the portion of the field of exposure.

4. The method of claim 3, wherein viewing further includes magnifying an image viewed by the camera.

5. The method of claim 1, further comprising:

transmitting data signals representative of at least one image of the field of exposure to at least one processing element;

processing the data signals to compare a viewed feature with a representation of the at least one feature; and

based on the processing, controlling locations at which the selectively consolidating is effected.

6. The method of claim 5, further comprising:

positioning at least one substrate within the field of exposure.

7. The method of claim 6, wherein transmitting data signals includes transmitting data signals representative of at least one image of at least a portion of the at least one substrate to the at least one processing element.

8. The method of claim 5, wherein transmitting data signals includes transmitting data signals representative of at least one image including at least one fiducial mark within the field of exposure.

9. The method of claim 1, further comprising:

positioning at least one substrate within a field of exposure of a selective consolidation system of a programmable material consolidation apparatus.

10. A method for programmed material consolidation, comprising:

instantaneously viewing an entire field of exposure of a selective consolidation system of a programmable material consolidation apparatus to identify a location of at least one feature within the field of exposure; and

selectively consolidating material on or proximate to the at least one substrate based on the location of the at least one feature.

11. The method of claim 10, wherein instantaneously viewing is effected from a camera oriented toward the field of exposure.

12. The method of claim 11, further comprising:

viewing a portion of the field of exposure following the instantaneous viewing.

13. The method of claim 12, wherein viewing the portion of the field is effected by rotating the camera toward the portion of the field of exposure.

14. The method of claim 12, further comprising:

magnifying an image of the portion of the field of exposure during or following viewing the portion.

15. The method of claim 10, further comprising viewing a portion of the field of exposure following the instantaneous viewing.

16. The method of claim 15, further comprising:

magnifying an image of the portion of the field of exposure during or following viewing the portion.

17. The method of claim 10, further comprising:

transmitting data signals representative of at least one image of the field of exposure to at least one processing element;

processing the data signals to compare a viewed feature with a representation of the at least one feature; and

based on the processing, controlling locations at which the selectively consolidating is effected.

18. The method of claim 17, further comprising:

positioning at least one substrate within the field of exposure.

19. The method of claim 18, wherein transmitting data signals includes transmitting data signals representative of at least one image of at least a portion of the at least one substrate to the at least one processing element.

20. The method of claim 17, wherein transmitting data signals includes transmitting data signals representative of at least one image including at least one recognizable feature within the field of exposure.

21. The method of claim 20, wherein transmitting data signals includes transmitting data signals representative of at least one image including at least one fiducial mark within the field of exposure.

22. The method of claim 20 wherein transmitting data signals includes transmitting data signals representative of at least one image including at least one feature on the at least one substrate.

23. The method of claim 10, further comprising:

positioning at least one substrate within a field of exposure of a selective consolidation system of a programmable material consolidation apparatus.